

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
22 January 2004 (22.01.2004)

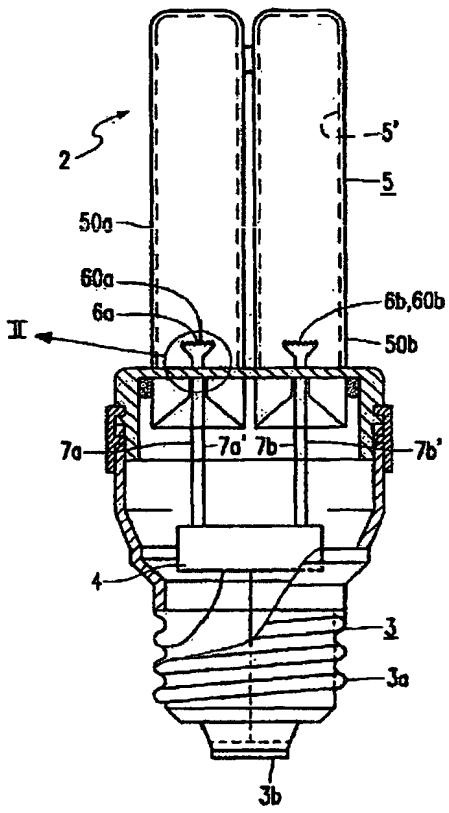
PCT

(10) International Publication Number
WO 2004/008483 A1

(51) International Patent Classification⁷: H01J 61/067
 (21) International Application Number: PCT/IB2003/003106
 (22) International Filing Date: 2 July 2003 (02.07.2003)
 (25) Filing Language: English
 (26) Publication Language: English
 (30) Priority Data: 102 32 239.2 17 July 2002 (17.07.2002) DE
 (71) Applicant (for DE only): PHILIPS INTELLECTUAL PROPERTY & STANDARDS GMBH [DE/DE]; Stein-damm 94, 20099 Hamburg (DE).
 (71) Applicant (for all designated States except DE, US): KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
 (72) Inventors; and
 (75) Inventors/Applicants (for US only): DENISSEN, Cornelis, Johannes [DE/DE]; c/o Philips Intellectual Property & Standards GmbH, Weiss hausstr. 2, 52066 Aachen (DE). RONDA, Cornelis, Reinder [NL/DE]; c/o Philips Intellectual Property & Standards GmbH, Weiss hausstr. 2, 52066 Aachen (DE).
 (74) Agent: VOLMER, Georg; Philips Intellectual Property & Standards GmbH, Weiss hausstr. 2, 52066 Aachen (DE).
 (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[Continued on next page]

(54) Title: LOW-PRESSURE GAS-DISCHARGE LAMP HAVING AN ELECTRODE



(57) Abstract: A low-pressure gas-discharge lamp provided with a gas-tight discharge vessel that contains a gas filling, with electrodes for maintaining a gas discharge in the discharge vessel, at least one of which electrodes is arranged inside the discharge vessel and comprises a coil having a core made from a first metallic refractory material that has a first electronegativity, having a surrounding winding made from a second metallic refractory material that has a second electronegativity, having a coating of an electron-emitting material arranged between the core and the winding and having current feeds, and with means for starting and maintaining a gas discharge. The invention also relates to an electrode.



(84) **Designated States (regional):** ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/03/03106

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H01J61/067

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 018, no. 003 (E-1485), 6 January 1994 (1994-01-06) & JP 05 251042 A (HITACHI LTD), 28 September 1993 (1993-09-28) abstract ---	1,2,4,7
A		3,5,6
X	GB 733 853 A (HERMANN EDUARD KREFFT) 20 July 1955 (1955-07-20) page 1, line 10-25 page 2, line 29 - line 120 figures 1-6 ---	7
A	US 2 740 914 A (ERNEST MILES EDWARD ET AL) 3 April 1956 (1956-04-03) the whole document ---	1,6 -/-

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

° Special categories of cited documents :

- °A° document defining the general state of the art which is not considered to be of particular relevance
- °E° earlier document but published on or after the International filing date
- °L° document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- °O° document referring to an oral disclosure, use, exhibition or other means
- °P° document published prior to the International filing date but later than the priority date claimed

- °T° later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- °X° document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- °Y° document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- °&° document member of the same patent family

Date of the actual completion of the international search

11 September 2003

Date of mailing of the International search report

18/09/2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Zuccatti, S

INTERNATIONAL SEARCH REPORT

International Application No

PCT/ [REDACTED] 3/03106

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1 104 933 A (PHILIPS CORP INTELLECTUAL PTY ;KONINKL PHILIPS ELECTRONICS NV (NL)) 6 June 2001 (2001-06-06) cited in the application the whole document ----	1-7
A	US 2 306 925 A (AICHER JOHN O) 29 December 1942 (1942-12-29) the whole document -----	1-7

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/03/03106

Patent document cited in search report	Publication date	Patent family member(s)			Publication date
JP 05251042	A 28-09-1993	NONE			
GB 733853	A 20-07-1955	NONE			
US 2740914	A 03-04-1956	NONE			
EP 1104933	A 06-06-2001	DE 19957420 A1		31-05-2001	
		CN 1298197 A		06-06-2001	
		EP 1104933 A2		06-06-2001	
		JP 2001189145 A		10-07-2001	
US 2306925	A 29-12-1942	CH 280313 A		15-01-1952	
		FR 968297 A		23-11-1950	

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

CORRECTED VERSION

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
22 January 2004 (22.01.2004)

PCT

(10) International Publication Number
WO 2004/008483 A1

(51) International Patent Classification⁷: H01J 61/067

[NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(21) International Application Number:

PCT/IB2003/003106

(72) Inventors; and

(22) International Filing Date: 2 July 2003 (02.07.2003)

(75) Inventors/Applicants (for US only): DENISSEN, Cornelis, Johannes [NL/DE]; c/o Philips Intellectual Property & Standards GmbH, Weissausstr. 2, 52066 Aachen (DE). RONDA, Cornelis, Reinder [NL/DE]; c/o Philips Intellectual Property & Standards GmbH, Weissausstr. 2, 52066 Aachen (DE).

(25) Filing Language: English

(74) Agent: VOLMER, Georg; Philips Intellectual Property & Standards GmbH, Weissausstr. 2, 52066 Aachen (DE).

(26) Publication Language: English

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,

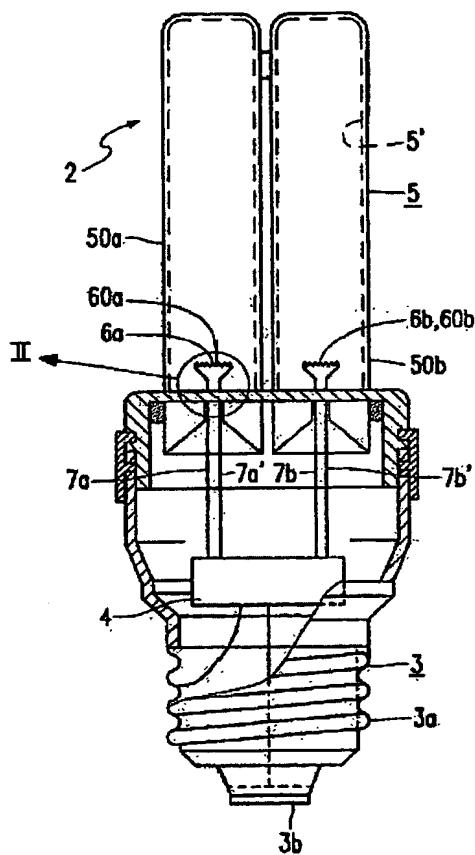
(30) Priority Data:
102 32 239.2 17 July 2002 (17.07.2002) DE

(71) Applicant (for DE only): PHILIPS INTELLECTUAL PROPERTY & STANDARDS GMBH [DE/DE]; Stein-damm 94, 20099 Hamburg (DE).

(71) Applicant (for all designated States except DE, US): KONINKLIJKE PHILIPS ELECTRONICS N.V.

[Continued on next page]

(54) Title: LOW-PRESSURE GAS-DISCHARGE LAMP HAVING AN ELECTRODE



(57) Abstract: A low-pressure gas-discharge lamp provided with a gas-tight discharge vessel that contains a gas filling, with electrodes for maintaining a gas discharge in the discharge vessel, at least one of which electrodes is arranged inside the discharge vessel and comprises a coil having a core made from a first metallic refractory material that has a first electronegativity, having a surrounding winding made from a second metallic refractory material that has a second electronegativity, having a coating of an electron-emitting material arranged between the core and the winding and having current feeds, and with means for starting and maintaining a gas discharge. The invention also relates to an electrode.

WO 2004/008483 A1



LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) **Designated States (regional):** ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(48) **Date of publication of this corrected version:**

25 November 2004

(15) **Information about Correction:**

see PCT Gazette No. 48/2004 of 25 November 2004, Section II

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.